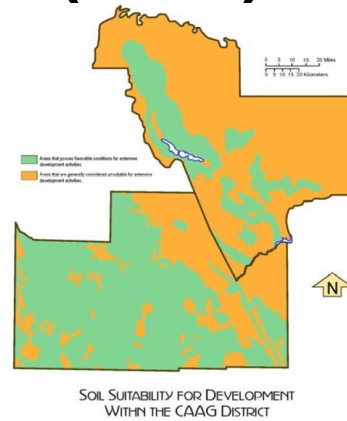


# Central Arizona Governments (CAG)

## Broadband Business Case Analysis (BCA)



For  
**Arizona Strategic Enterprise  
Technology Office (ASET)**

By Bill Bolin  
Systems Technology Staffing, LLC  
480-639-7138, [billbolin@hotmail.com](mailto:billbolin@hotmail.com)

April 15, 2014 (Version 04.03.14.0)

# **CAG Broadband Business Case Analysis (BCA)**

## **Table of Contents**

	<b><u>Page</u></b>
<b>Preface</b>	<b>4 - 5</b>
<b>Executive Summary</b>	<b>6 - 7</b>
<b>What does Arizona's Broadband Capacity look like</b>	<b>8 - 9</b>
<b>Four Major Applications</b>	<b>10</b>
<b>CAG's Broadband Project Process</b>	<b>11</b>
<b>CAG's Broadband Business Case Analysis Process</b>	<b>12 - 20</b>
<b>BCA Objectives and Broadband Gap Analysis</b>	<b>15 - 20</b>
<b>APPENDICES:</b>	
<b>Appendix A: ASET/NTIA Quarterly Report</b>	<b>21 - 22</b>
<b>Appendix B: CAG Community Data Sets</b>	<b>23</b>
<b>Appendix C: CAG Service Providers</b>	<b>24 - 26</b>
<b>Appendix D: Example -Systems Requirements Document</b>	<b>27 - 28</b>
<b>Appendix E: Example - Providers System Requirements</b>	<b>29 - 30</b>
<b>Appendix F: Survey Example used to Rank the Applications</b>	<b>31</b>
<b>Appendix G: Grants</b>	<b>32 - 33</b>
<b>Appendix H: CAG Broadband Committee members</b>	<b>34</b>
<b>Appendix I: USDA RBEG with Broadband Project members</b> <b>(NACOG and Copper Corridor)</b>	<b>35</b>

<b>Appendix J:</b>	<b>Website Updates</b>	<b>36 - 37</b>
<b>Appendix K:</b>	<b>Arizona Public Service Master License</b>	<b>38</b>
<b>Appendix L:</b>	<b>Application Down Load and Up Load preferred Speeds</b>	<b>39</b>
<b>Appendix M:</b>	<b>City of Maricopa broadband providers</b>	<b>40</b>
<b>Appendix N:</b>	<b>Broadband Checklist</b>	<b>41 – 43</b>

# CAG Broadband Business Case Analysis (BCA)

## Preface:

High speed Internet is the new essential infrastructure for this century's job creation, educational and healthcare transformation, and economic development, just as highways, railroads, canals, electricity, and telephone were for previous generations. It is the 21<sup>st</sup> century's infrastructure challenge and it is becoming ever more critical that communities in CAG have adequate bandwidth to help our local economies, create jobs, and improve education, healthcare, public safety, and quality of life.

Earlier this year saw the formation of a **CAG Broadband Steering Committee** ([http://www.CAG.az.gov/CAG\\_facilities.aspx?id=12402](http://www.CAG.az.gov/CAG_facilities.aspx?id=12402)) with broad participation among regional economic development, educational technology, transportation, government IT, healthcare, and public safety stakeholders. The Committee and its activities are being funded, in part, by a federal broadband grant administered through the **State of Arizona's Digital Arizona Program (DAP - <http://azbroadband.gov/>)**.

CAG has been selected to receive these funds to help advance broadband assessment, gap analysis, strategy, tactics, and application adoption in our region, Gila and Pinal counties. **Systems Technology Staffing, LLC** has been hired for Community Planning support under the grant and their consultants are facilitating the CAG Broadband Steering Committee, collecting and analyzing regional broadband and economic data, producing a series of reports, and otherwise assisting with this project.

There are several **Digital Arizona Program (DAP)** initiatives at the state level. The Governor's **Digital Arizona Council (DAC)** with their web presence at [http://www.digitalarizona.gov/Digital\\_Arizona\\_Council/About\\_DAC.html](http://www.digitalarizona.gov/Digital_Arizona_Council/About_DAC.html) meets quarterly and is working on an Arizona Broadband Strategic Plan. The **Arizona Broadband Map** portal ([http://www.digitalarizona.gov/Maps/Arizona\\_Broadband\\_Maps.html](http://www.digitalarizona.gov/Maps/Arizona_Broadband_Maps.html)) offer interactive insight to broadband coverage across the state and the community planning version integrates substantial demographic and economic data to aid policy analysis and planning. DAP has recently launched an **Arizona Broadband Speed Test** available for resident and enterprise use at <http://www.digitalarizona.gov/Survey/AffiliationQuestion.html> for gathering information about broadband coverage and performance across the State. They are strongly encouraging CAG broadband stakeholders to take the speed test periodically and to also distribute the information and request to utilize among their respective stakeholder community.

The **Arizona Strategic Enterprise Technology Office (ASET)** coordinates these initiatives. Their office address is 100 N. 15th Ave. Suite 400, Phoenix, AZ 85007, and their main phone number is: (602) 542-2250. Additional information and resources may be found online at the ASET website: <http://aset.azdoa.gov/> and the Digital Arizona Program's (DAP) website at <http://DigitalArizona.gov/>. The DAP primary email address is [question@DigitalArizona.gov](mailto:question@DigitalArizona.gov).

**Disclaimer:** None of the information in this report should be construed as official public policy of CAG's regional governments or the Arizona State government. However, funding to assist in producing this report came from a federal NTIA grant managed by an Arizona State agency.

# **CAG Broadband Business Case Analysis (BCA)**

## **Executive Summary:**

The two **CAG Counties** that are the focus of this Broadband Business Case Analysis (BCA) include Gila and Pinal with CAG leading the procurement and management of broadband consultant services.

A CAG Broadband Steering Committee was formed with broad participation among regional economic development, educational technology, transportation, government IT, healthcare, and public safety stakeholders to help ensure that the CAG region has adequate bandwidth to help our local economies, create jobs, and improve education, healthcare, public safety, and quality of life. It is important to recognize CAG's value of broadband and this can be seen in the update to the CEDS report,

## **Broadband Sub-Committee**

CAG created a Broadband Sub-Committee through its Economic Development Council. Members of the Broadband Sub-Committee were chosen from local communities throughout CAG's two county region.

Committee members have ranked the importance of applications to enhance the quality of life in rural Arizona. The applications ranking include:

1. Economic Development- Jobs,
2. Education,
3. Tele-Health and
4. Public Safety.

Because of a shortage of resources (manpower), the US 60 and Broadband, SR 177 Superior to Kearny to Hayden/Winkelman, a contract with Rio Tinto, (world's second largest mining operation), and a grant from USDA for a Rural Business Enterprise Grant (RBEG) with Broadband were selected as the main projects to proceed with in the development of a Business Case Analysis.

## **History of the Deliverables - Reports:**

This process of report generation included three significant milestone reporting periods. The first report was delivered on schedule before July 31, 2013. This report contained specifics about the original two regions, broadband coverage and service, speeds obtained for the CAG Region can be seen in Appendix M, and most important were the recommendations to make the Digital Arizona Program a success and provide sustainability for the region's major objective(s). This final report follows the recommendations.

Prior to the second report, delivered on schedule before December 31, 2013, ASET conducted a meeting on November 25, 2013. In attendance were the region's stakeholders and consultants. The message from ASET was clear, it was to formulate a project(s) and generate demand aggregation from the regional stakeholders and providers. This particular report demonstrated active work on the CAG's major regions. It set the agenda for regional stakeholders to identify project(s) that would have the best likelihood for success. See Appendix A.

This final, 3<sup>rd</sup> report, represents the outcome of the Digital Arizona Program Community Planning and Technical Assistance activities. This document serves as the **CAG Final Deliverable report**. It addresses the recommendations as identified in the first report and responds to the requirements of the Business Case Analysis contract with the regions. It provides a flow into the Technical Assistance report, where the GAP Analysis outcome to date is presented.

### **Summary:**

This report identifies the contractual objectives as defined in the FORM DAP-AT-E2, EXHIBIT 2 FOR BROADBAND LOCAL PLANNING ASSISTANCE TO ARIZONA COMMUNITIES, SEPTEMBER 28, 2013.

This report is structured to respond to the Statement of Work as described in the FORM DAP-AT-E2 with identification of specific objectives and a response relative to the deliverables of the objectives. Additionally, it provides a brief history of the major REPORT milestones and detail descriptions of the specific Broadband projects and the USDA - RBEG Broadband Project in the CAG two County region.

It is recommended that the Douglas Project System Requirements be emulated as a template for Project Management, for the other county's broadband programs. The USDA RBEG / Broadband Project takes traction by collaborating with City of Maricopa Center for Entrepreneurship (MCE) and Globe's Economic Development.

The CAG Two County Broadband Local Planning Assistance to Arizona Communities report, (first of 3 report milestones – July 31, 2013 ), produced and provided by Systems Technology Staffing served as the document that identified the broadband services and capacities throughout the CAG two county region. It also included many recommendations that were subsequently followed in the second report (ASET/NTIA Quarterly - December 31, 2013 see Appendix A) and delivered in the third report (this report) due April 15, 2014).

Limited resources and time have prevented the development of additional projects in the region. There are needs and many opportunities for the CAG Region to fulfill and they include, but are not limited to:

- North Corridor (including Dudleyville, Superior, Kearney, Hayden/Winkelman)
- US 60 Corridor (Superior, Miami, Claypool and Globe)
- NE Gila County (including Punkin Center, Payson, Star Valley, Pine and Strawberry)
- South Copper Corridor (Mammoth, San Manuel, Oracle and Oracle Junction/Saddlebook)

All of the above communities can be viewed in the Community Broadband Map, where the demographics, socio-eco and broadband services are identified:

<http://broadbandmap.az.gov/CommunityPlanningMap/>

### **What does broadband in Arizona look like?**

Some 46% percent of Arizona households have connectivity at less than the National broadband definition of 4 Mbps download and 1 Mbps upload. Akamai data shows that Arizona ranks 45th in the nation with a 4.8 Mbps average speed experienced by broadband subscribers (second quarter 2012). There is significantly less availability of high-speed services in rural parts of the state compared to metropolitan areas. Unless something is done, this “digital divide” will only increase because modern Internet is becoming increasingly video intensive. The next generation of Internet and applications will be all about high definition video, requiring as much as ten times the broadband capacity of previous generation Internet uses. In addition, businesses will increasingly rely on cloud computing, web-conferencing with real time video for communications and collaboration, and telework, each layering on the need for even greater broadband capacity. So previous definitions of sufficient Internet access speeds are rapidly becoming obsolete.

The Governor signed legislation during the 2011-12 session (SB 1402) that enables Arizona's state highway rights of way to be utilized to help build out badly needed middle mile broadband fiber capacity to rural areas of Arizona while supporting other high-capacity middle mile and long haul connectivity needs. A number of companies have expressed interest in utilizing the resources made available by SB1402. During the most recent legislative session, a telemedicine bill (SB 1353) was passed for payment parity for remotely delivered services, the implementation of which will simultaneously reduce medical costs, save lives, and improve rural economies by requiring health insurance providers to reimburse medical specialists for services provided via broadband-based telemedicine. And a data center bill (HB 2009) was passed to encourage regional placement of data center facilities via favorable tax policy.

Specifically, this Business Case Analysis (BCA) shows CAG regions have limited broadband capacity, diversity, and backhaul capabilities. Minimum Sufficient Speed Threshold tables were identified for four major application areas, economic development, education, telemedicine and public safety. Even with speed thresholds as low as 10 Mbps download and 5Mbps upload, no community reviewed in these two



CAG regions could be considered as meeting threshold standards for all of these important applications. This is a critical issue that must be resolved for continuous economic development and improvements in education, healthcare and public safety to continue as well as for the general economic well-being of CAG communities. The importance of doing this is because it will ultimately enhance the four major applications, as next described.

CAG's broadband coverage areas are included in Appendices L and M.

## **Four Major Applications**

### **Foster local ECONOMIC DEVELOPMENT (JOBS) by:**

- Attracting new businesses plus retaining and expanding the current businesses
- Providing local jobs and developing new skill-sets necessary to increase employment and community sustainability in today's knowledge economy
- Supporting local entrepreneurs who engage with the global economy using broadband and the Internet to deliver goods and services around the globe

### **Improve EDUCATION success within local communities by:**

- Increasing the effective use of interactive digital learning solutions such as self-paced learning and remote content resources for transformational education initiatives
- Providing distance learning and collaboration in classrooms, homes, and businesses for students of all ages with universities around the world
- Enabling real-time progress accountability for student and staff performance supporting early intervention and remediation

**RBEG** is intended to develop entrepreneurs throughout 6 rural counties. This program was recognized by USDA as one of the nation's Rural Innovation Programs. The RBEG is partnering with MCE in the City of Maricopa to expand rural entrepreneurs. MCE is participating with the schools to provide innovative programs under STEM.

- Because the RBEG does have broadband as a critical element, a Broadband Checklist was created for communities/regions not familiar with broadband infrastructure and capacity. The Checklist can be seen in Appendix N.

### **Improve HEALTH CARE (Telemedicine) availability and quality while lowering costs by:**

- Using high-speed broadband connectivity for local doctors and healthcare providers to collaborate with remote specialists
- Improving local triage to reduce unnecessary transportation of patients to remote facilities
- Providing remote well-being check-ups from existing local facilities such as schools, libraries, etc.
- Providing enhanced in-home care with monitored sensors and video check-ups by remote health care providers

There is a significant need to provide broadband service to the N. Copper Corridor. Currently, Kearney residents must load their health diagnosis on a flash drive and have it driven to Globe for medical review. This is a prime location for Telemedicine.

### **Improve PUBLIC SAFETY and save lives by:**

- Delivering accurate real-time data to all first-responders as needed and across jurisdictional/agency boundaries and connecting ad-hoc groups on a per event basis

## **Project Process:**

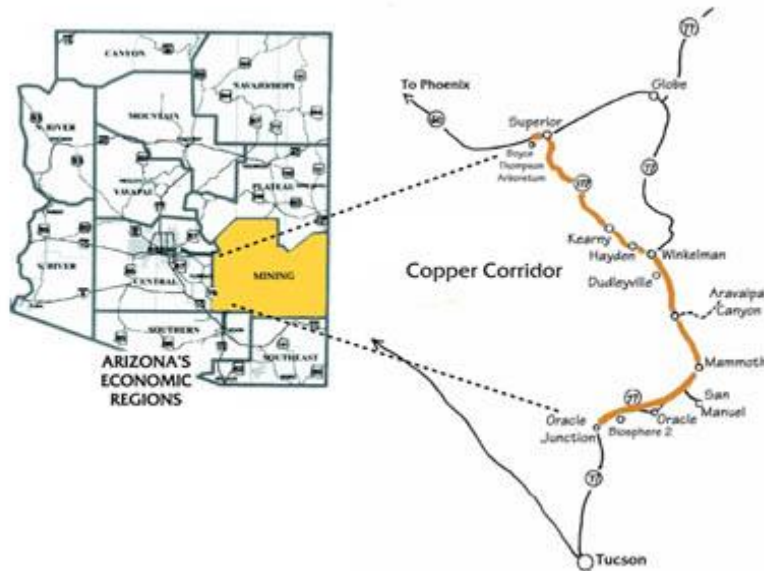
The project's process flow followed the Community Planning Guidelines. CAG began seeking major projects that would have an economic impact regionally. The CAG Broadband Committee chose the US 60 and Broadband as the major project. This project is represented by CAG and includes communities such as Superior, Miami, Claypool and Globe. The response was to find a project that had a need for broadband. US 60 and Broadband, continues to be one of CAG's main projects. Due to limited resources, manpower, the USDA RBEG with Broadband Project, the North Copper Corridor Communities and the Rio Tinto Project with Broadband have taken up priorities. This does not exclude the importance of other community projects. For example, Dudleyville area is expecting construction of a San Carlos Apache Tribe Casino. The Tribe is fully aware that the casino's operation is dependent on broadband. In Superior, the Magma Hotel is being renovated and along Resolution's Mining operation, the hotel can expect a 100% occupancy rate. Broadband for Superior will be a critical element for sustainability. Although there is current infrastructure in place for these projects, the projects will not be initiated and/or completed by the end of April 2014. This report follows the Community Planning Guidelines that are identified in the Business Case Analysis and include five unique Deliverables completed ending April 30, 2014.

# CAG Projects – US 60 Corridor, USDA-RBEG, N. Copper Corridor and Rio Tinto Mining Study

## 1. Preparation of a Business Case Analysis

I. Work with the identified regions to assess the Inventory of broadband services and infrastructure currently available.

**Deliverables:** Community Data Sets identify the four regions and eighteen community's assets. See Appendix B. Broadband services were obtained from the Arizona Broadband Community Planning Map and by contacting the service providers to obtain the most current coverage and capacity. See Appendix C for a list of Gila and Pinal County Broadband providers.



The CDS example above represents the Copper Corridor, US 60, SR 77 and SR 177. These roads represent corridors where commerce among communities is dependent on traffic and broadband. Except for Tucson (Tucson is not rural), there are Community Data Sets available in the Community Broadband Map:

<http://broadbandmap.az.gov/CommunityPlanningMap/>

## The CDS provides:

Microsoft Excel non-commercial use

File Home Insert Page Layout Formulas Data Review View PDF

A1

US60corridor

**Superior, Arizona**

[Click here to see Copper Corridor Communities - History and Tourism](#)

Population: 3,525 (7/2009) 2,837 6,600% 1,100% 2,0% 9,700% Superior, AZ

Labor Force: 2,056 (2008) 2,056

Incorporated: 1976 1976

Location: 63 miles east of Phoenix

Econ-Dev. Director: 520-689-5725

Police Chief: 520-689-5254

Public Works: 520-689-5752

Library Director: 520-679-2327

Unemployment Rate: 11.60%

Estimated Median HH income: \$35,223

Arizona Median HH income (person) 1 person 2 person 3 person 4 person add \$ 7,000 for each additional person

Arizona \$42,603 \$55,404 \$59,659 \$67,113

Estimated median house or condo value: \$60,739

**BUSINESS SECTORS - INDUSTRY & OCCUPATIONS**

**Most common industries in 2005-2009 (%)**

Mining, quarrying, and oil and gas extraction (31%)

Construction (14%)

Public administration (14%)

Accommodation and food services (6%)

Retail trade (6%)

Administrative and support and waste management services (5%)

Other services, except public administration (5%)

**Most common occupations (%)**

Building and grounds cleaning and maintenance occupations (10%)

Vehicle and mobile equipment mechanics, installers, and repairers (9%)

Law enforcement workers including supervisors (8%)

Cooks and food preparation workers (5%)

Electrical equipment mechanics and other installation, maintenance, and repair occupations including supervisors (5%)

Driver/sales workers and truck drivers (5%)

Other protective service workers including supervisors (5%)

**Broadband Providers' Services**

SRP AT&T

CenturyLink CopperNet

Star Band Verizon

HNS ViaSat

**For population 25 years and over in Superior:**

Unemployment in August 2012:

High school or higher: 71.0% Here: 9.00%

Bachelor's degree or higher: 7.0% Arizona: 8.50%

Graduate or professional degree: 2.8%

Unemployed: 15.4%

Mean travel time to work (commute): 31.9 minutes

Company Name	Address	City	State	ZIP	Fax Number	USA	Location Employee	Location Sales	Phone Number
Albo-Guzman Trucking	3011 W Mary Dr	Superior	AZ	85173	520-689-5725	88-523-	11p4	\$1-2.5 Million	(520) 689-2706

Ready Average: 20475.65531 Count: 982 Sum: 327610.485 68%

## CDS data elements include:

Superior, Arizona	CAAG 2010 Census	Sales tax - State	County	City	Total
<a href="#">Click here to see Copper Corridor Communities - History and Tourism</a>					
Population: 3,525 (7/2009)	2,837	6,600%	1,100%	2,0%	9,700%
Labor Force: 2,056 (2008)	2,056				
Incorporated: 1976	1976				
Location: 63 miles east of Phoenix	Econ-Dev. Director: 520-689-5725				
	Police Chief: 520-689-5254				
	Public Works: 520-689-5752				
	Library Director: 520-679-2327				
Unemployment Rate: 11.60%					
Estimated Median HH income: \$35,223					
Arizona Median HH income (person)	1 person 2 person 3 person 4 person add \$ 7,000 for each additional person				
Arizona \$42,603	\$55,404	\$59,659	\$67,113		
Estimated median house or condo value: \$60,739					
<b>BUSINESS SECTORS - INDUSTRY &amp; OCCUPATIONS</b>					
<b>Most common industries in 2005-2009 (%)</b>	<b>Most common occupations (%)</b>				
Mining, quarrying, and oil and gas extraction (31%)	Building and grounds cleaning and maintenance occupations (10%)				
Construction (14%)	Vehicle and mobile equipment mechanics, installers, and repairers (9%)				
Public administration (14%)	Law enforcement workers including supervisors (8%)				
Accommodation and food services (6%)	Cooks and food preparation workers (5%)				
Retail trade (6%)	Electrical equipment mechanics and other installation, maintenance, and repair occupations including supervisors (5%)				
Administrative and support and waste management services (5%)	Driver/sales workers and truck drivers (5%)				
Other services, except public administration (5%)	Other protective service workers including supervisors (5%)				
<b>For population 25 years and over in Superior:</b>	<b>Unemployment in August 2012:</b>				
High school or higher: 71.0%	Here: 9.00%				
Bachelor's degree or higher: 7.0%	Arizona: 8.50%				
Graduate or professional degree: 2.8%					
Unemployed: 15.4%					
Mean travel time to work (commute): 31.9 minutes					
Company Name	Address	City	State	ZIP Code	Fax Number Combined

Details include:

Population, Labor Force, Incorporated, Location to major cities  
Unemployment rate, Median Home Price, Business Sectors and Occupations, High School  
Graduation percentages, Broadband Providers and links to Schools, Medical Facilities and  
Utilities.

The hyperlinks relieve the user from having to utilize several search engines to obtain:

1. Utility Companies
2. Broadband Providers
3. State Highways for Right of Way, Clearances and Ordinances
4. Rail Roads for Commerce, Right of Ways
5. School Districts for Distance Learning and Educational Broadband services
6. Medical Centers within the region for Telemedicine

II. This Inventory will (and has) utilize(d) such data resources as the Broadband Community Planning Map, City-Data, ACA, DES, ReferenceUSA and other applicable data resources.

**Deliverables:** The Community Planning Map can be used to search the inventory assets of a particular community, community vs county and county vs state statistics. City-Data and ReferenceUSA serve as the data-pools for the demographics of a community. Arizona Commerce Authority (ACA) provides rural grants to rural Arizona and Department of Economic Security (DES) is researched for labor statistics. The actual deliverable is formulated in the CDS, as depicted above.

III. A Systems Requirements document will be prepared.

**Deliverable:** During the second of four meetings conducted with US 60 and Broadband, a Systems Requirement document was prepared. The purpose of the document was to provide a mechanism for the users to record their current broadband services and identify their key objectives. The complete document used for the Systems Requirements can be seen in Appendix D. The actual questionnaire format is demonstrated on the following page.

The Systems Requirements documents (one for stakeholders and one for providers) identifies the limitations of what broadband services are currently available. The Technical Assistance consultant directs the activities and establishes the agendas for action meetings. The result is identification of the GAPs, and as these are determined plans for demand aggregation and alternative system solutions will be presented along with budgets, time-frames and leadership.

## **CAG Region Broadband Gap Analysis:**

The following GAP Analysis was extracted from the first CAG BCA report.

“...CAG should put in place action plans (see Rio Tinto Project, US 60 and Broadband Project and the Rural Business Enterprise Grant (RBEG)). These action plans will require group leaders (see Appendices H and I) for Task Teams and leaders”. Due to limited resources, the US 60 and Broadband Project along with the RBEG are the established projects for the CAG Region.

- Rio Tinto, the world’s second largest mining operation, has an agreement with STS to provide statistics on what makes mining in a community/region successful. This is a research project. Rio Tinto recognizes that without internet / broadband, there will be an educational and skill set void. Resolution Mining, a division of Rio Tinto, is currently deploying STEM programs to K-8, to keep abreast of new technologies mining industries are incorporating such as robotics. This project continues beyond the April 30, 2014 cutoff for Arizona’s Rural Broadband Community Planning and Technical Assistance.
- The results of the US 60 and Broadband – Demand Aggregation show there is a Last Mile – Distribution problem. The US 60 and Broadband Project is committed to addressing this issue. Further definitions are available in the Technical Assistance document.
- It has been confirmed that fiber runs to Superior, AZ (paralleling US 60), and along SR 177 from Superior to Hayden, AZ. CenturyLink runs from Superior to Globe. SRP has dark fiber running from Superior to Hayden. In both routes, this broadband capacity exclusively supports mining operations. The Technical Assistance report addresses the last-mile and distribution problems associated with exclusive broadband use.
- The USDA-RBEG Resource Center program has partnered with Maricopa’s Center for Entrepreneurship (MCE) and outside of the City of Maricopa there is limited broadband services. The lack of this service presents a key strategy for the community to seek upgraded services from providers. A list of providers has been provided to MCE for their community review. See Appendix M.

The GAP Analysis is constructed from Systems Requirements. The following pages represent forms for gathering Systems Requirements from Stakeholders and from Service Providers.

## SYSTEM REQUIREMENTS SUMMARY:

**Name of Business:** \_\_\_\_\_

**Location (address):** \_\_\_\_\_

**Type of Business:** \_\_\_\_\_  
(Education, Medical, Government, Business, Public Safety)

**Major Application(s):** \_\_\_\_\_  
(taxes, accounting, enrollment, admission/transfer/discharge, production, sales, marketing, etc.)

**Describe Volume and Frequency:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Number of Users:** \_\_\_\_\_ **Peak Time of Day/Night:** \_\_\_\_\_

**Number of PCs in facility(s):** \_\_\_\_\_

**Description of Current Equipment** (switches, servers, host computer(s): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Describe Current Broadband Configuration** (fiber, DSL, T1 / Copper, DS3, etc.)

**Age of Equipment:** \_\_\_\_\_ years      **Equipment under Maintenance:** Yes or NO circle

**Terms of Contract and Contract Period:** \_\_\_\_\_  
\_\_\_\_\_

**Describe YOUR Major Goal:** \_\_\_\_\_  
\_\_\_\_\_

In terms of bandwidth if known, what synchronous throughput capacity and/or speed ( Mbps )...not how it is delivered ( fiber vs copper vs wireless, Etc )

<b>MUST Have</b>	<b>LIKE to Have</b>
_____	_____
_____	_____

**Please indicate your Name and contact information:**

**NAME:** \_\_\_\_\_ **email:** \_\_\_\_\_

**Phone:** \_\_\_\_\_



IV. An analysis of potential demand aggregation and its incentive for private sector broadband investment in each region will be created.

**Deliverable:** The first deliverable occurred in the Town of Miami, along US 60 Corridor. Water and Sewer upgrades were approved and there was an opportunity to see if broadband conduit and fiber could be laid during the construction phase. During the site visit, it was determined that the town actually had broadband overhead with CenturyLink and Crowne Castle providers. Once again this represented a last-mile distribution problem.

The next demand aggregation process occurred during the third Broadband Forum's, facilitated by CAG at the Central Arizona campus in Apache Junction. Community Planning presented the Broadband Community Planning Map along with CAG's broadband projects. Technical Assistance followed up by presenting how community aggregation and provider aggregation was essential to success. Many community and business leaders were present along with several service providers.

The example document used for the Provider's Requirements can be seen in Appendix E. The actual questionnaire format is demonstrated on the following page.

Laying underground fiber is expensive. A combination of underground and overhead broadband will, in many cases be the path to follow. APS is the power service provider for the area. Attachment K, APS Master License Agreement is a contract for broadband providers to erect equipment on APS's power poles.

**NEWORK / FACILITY SUMMARY:**

**Name of Business:** \_\_\_\_\_

**Location (address):** \_\_\_\_\_

**Business (Public or Private) (circle one)**    **Public**    **Private**  
**International,      National,      Regional,      Local (circle best description)**

**Arizona Corporation Commission or FCC registration type:** (CLEC, ILEC, common carrier, unregistered, etc.) \_\_\_\_\_

**Local Contact Person (name, title email, phone):** \_\_\_\_\_

**Description of service delivery method:** (fiber, DSL, T1 / Copper, DS3, etc.) \_\_\_\_\_

**General Description of Customers:** (government, education, health, base businesses) \_\_\_\_\_

**List Interconnected Providers:** \_\_\_\_\_

**Radius of Services:** \_\_\_\_ miles from downtown US 60 and Broadband Az., List Connected Communities: \_\_\_\_\_

**Location of Point Of Presence(s) (CO, POP, COLO, ETC):** \_\_\_\_\_

**Path of Inter Office Fiber (place on the Map color coded)**

**Description of Current Equipment Both Intra-building and Field (switches, DSLAM, amplification, repeaters, servers) :** \_\_\_\_\_

**Describe Current Broadband Configuration**

**Age of Equipment:** \_\_\_\_\_ years    **Equipment under Maintenance:** Yes or NO circle

**Terms of Contract and Contract Period:** \_\_\_\_\_

V. A survey to gather data to be utilized in generating a report on current adoption of broadband services to constitute desired levels of broadband capacity and services.

**Deliverable:** A survey was produced and distributed via email to the user groups within the four regions. The survey can be seen in Appendix F. Whereas the actual order of preferences for the US 60 and Broadband project are focused on Economic Development, Education and Public Safety. This summation does not differ significantly from the responses for the survey.

CAG County broadband application rankings (highest to lowest priority):

1. Economic Development
2. Telemedicine
3. Public Safety
4. Education

Overall ranking of the two counties:

1. Economic Development
2. Telemedicine
3. Public Safety
4. Education

## **2. Grant Opportunity Identification**

1. Research, identify and qualify feasible grant opportunities for funding or partial funding of middle mile conduit build outs utilizing SB1402 or other digital capacity (broadband) improvement projects...including the significance of AZ-USDA recommending Poverty Rates by Census Tracts. This was later incorporated into the Community Broadband Map. An USDA RBEG was awarded to NACOG and Copper Corridor to facilitate Resource Centers throughout six rural counties. This grant includes broadband, because without connectivity there will be no educational benefits. The RBEG has allowed a partnership with the Maricopa Center for Entrepreneurs. Additional grants can be seen in Appendix G.

**Deliverable:** There are two grants currently available in the CAG Region. The USDA-RBEG Project with Broadband is currently partnering with Maricopa's Center for Entrepreneurship (incubator) and with Globe, Arizona for Resource center workshops. The second grant available for Gila and Pinal Counties is the Connect America Fund. A description of the fund is explained on the following page.

## Connect America Fund:

"There have been two rounds of Phase I support. In the first round of Phase I (conducted in 2012), two carriers (Frontier and CenturyLink) stated that they planned to deploy in Arizona. CenturyLink accepted \$509,175, while Frontier accepted \$254,200. The Commission has not put out county-level data for the first round of Phase I, but state-level data is available at <http://www.fcc.gov/maps/connect-america-fund-caf-phase-i>. For the second round of Phase I (conducted in 2013), **CenturyLink accepted \$4,624,275 to deploy to eight counties** (Coconino, **Gila**, Maricopa, **Pinal**, Santa Cruz, Yavapai, and Yuma), while Frontier accepted \$7,012,725 to deploy to three counties (Apache, Mohave, and Navajo). A map of planned second round deployments is available at <http://www.fcc.gov/maps/connect-america-fund-phase-i-round-two>. A note of caution - these are just planned deployments, and carriers are permitted to alter their deployment plans upon providing proper notice. Thus, a given county may end up receiving more or fewer locations than shown in initial deployment plans."

Representative Number : TSR54

### **3. Broadband Committees**

1. Continue expansion of the CAG two County broadband committee.

**Deliverable:** The list of the CAG Two County Broadband Committee members can be seen in Appendix H. Under the USDA-RBEG Project with Broadband an action team has been established to construct demand aggregation in order to create Resource Centers with workshops throughout six (Gila, Pinal, Apache, Navajo, Coconino and Yavapai) counties. This committee can be seen in Attachment I.

### **4. Broadband focused Webpage(s)**

1. Publication of pages is expected to occur at the inception of the approved activities. There will be periodic updates.

**Deliverables:** There have been periodic updates to the client's website. CAG has directed the two counties to also update their websites with the updated material provided. These updates can be seen in Appendix J.

## Appendix A

### **ASET / NTIA QUARTERLY REPORT (Q4 2013)**

This report is intended to describe action against the tasks as described in the Broadband Community Planning Document: Exhibit 2 – Statement of Work (SOW) for the following three rural regions. The SOW includes four tasks. This report identifies activities for the period reported.

**Central Arizona Governments (CAG).** Two counties: Pinal and Gila.

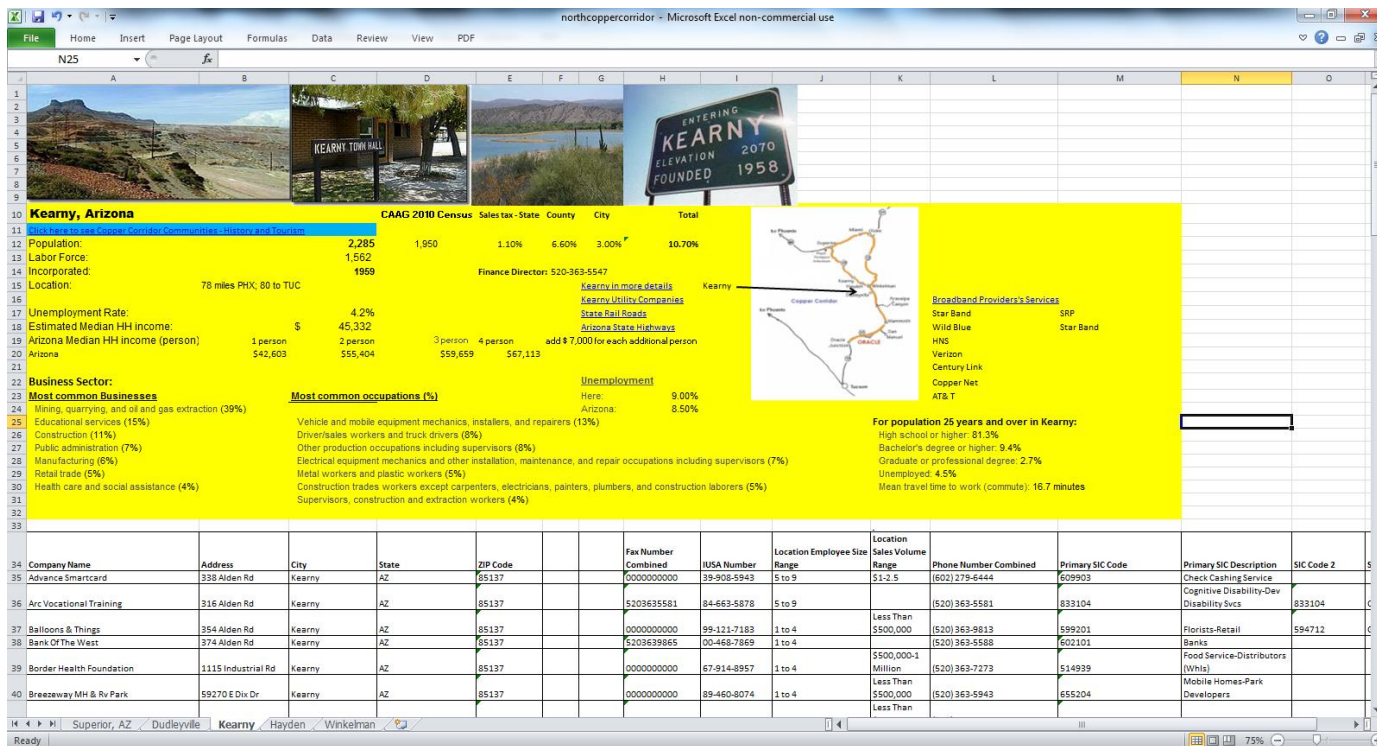
#### **Broadband Community Planning Activities (GOALS vs ACCOMPLISHMENTS:**

1. **Preparation of a Business Case Analysis** results:
  - a. Work with regions and projects begun.
  - b. Inventory assets (Community Data Sets) for four regions conducted and updated.
  - c. Current activity on Rural Resource Centers with Broadband. A Broadband Check List has been constructed for stakeholders and prospects.
  - d. Demand aggregation of providers begins with list of regional providers obtained from the broadband map and then Tech/Assistance will follow up.
2. **Grant Opportunities:** Working with USDA we have identified the following grants for first and second quarter of 2014:
  - a. USDA-RBEG Grant 2013-2014 awarded for Regional Resource Centers including Broadband Systems Requirements. Includes NACOG & CAG.
  - b. Community Connect Grant
  - c. Distance Learning and Telemedicine Grant
  - d. Revolving Loan Fund (RLF) for the CAG region – to support broadband and small business enterprises
  - e. Arizona Commerce Authority grants and funding for rural Arizona
  - f. Economic Development Authority (EDA, U.S. Dept. of Commerce)
  - g. CAG's Community Block Grant Development (CDBG) programs are being reviewed to see how it can supplement funding for broadband.
3. **Broadband Committees:** CAG formed a general Broadband Sub-Committee for the general regional applications. Project Team has been established for the Resource Center and the Copper Corridor Region.
  - a. **Resource Centers:** A USDA-RBEG award funds the project. A requirement was to include broadband. One of the communities involved is Kearny, AZ. A meeting with the Mayor, Interim Town Manager, Copper Corridor Project Leader and Economic Developer was held January 17, 2014. Meetings scheduled for February.
  - b. **Yavapai Apache Casino:** In Dudleyville, AZ will require broadband fiber after construction. Salt River Project has BLP that supports ASARCO Mining 12 miles distance from Dudleyville.
  - c. **Town of Miami:** Currently has a water/sewer project funded by USDA. A review of the project and the town, including assessment of current

service providers was conducted on site. Additional funding for regional broadband is currently being reviewed from Superior to Miami to Claypool to Globe.

4. **Broadband Focused Webpage(s):** Two updates provided to CAG.
  - a. CAG Broadband One Page-Phase II, see attachment 1.
  - b. Email to CAG for new link: January 2014: Al Larson and Ken Hall,  
Would you please have your NACOG webpage link to:  
[http://azbroadband.gov/Resources/Arizona\\_Rural\\_Initiatives.html](http://azbroadband.gov/Resources/Arizona_Rural_Initiatives.html).
1. **Broadband Focused Webpage(s):** Two updates provided to CAG.
  - a. CAG Broadband One Page-Phase II, see attachment 1.
  - b. Email to CAG for new link: January 2014: Teri and Vicki,  
Would you please have your CAG webpage link to:  
[http://azbroadband.gov/Resources/Arizona\\_Rural\\_Initiatives.html](http://azbroadband.gov/Resources/Arizona_Rural_Initiatives.html).

## Appendix B Community Data Sets



The image above is a screen shot of the Community Data Set for CAG County. The data includes:

1. Hyperlinks to many of the cities/towns in CAG County.
2. A map of CAG County with locations of cities/towns.
3. A comparison of CAG County to Arizona.
4. Major utility companies in servicing the County.
5. A tab for each City: Superior, Dudleyville, Kearney, Hayden, Winkelman

The Arizona Broadband Community Planning Map will display the CAG communities and regions in great detail: <http://broadbandmap.az.gov/CommunityPlanningMap/>

Appendix C – A list of Gila and Pinal County  
Broadband Service Providers can be found on the  
next two pages...



Gila County Service Providers

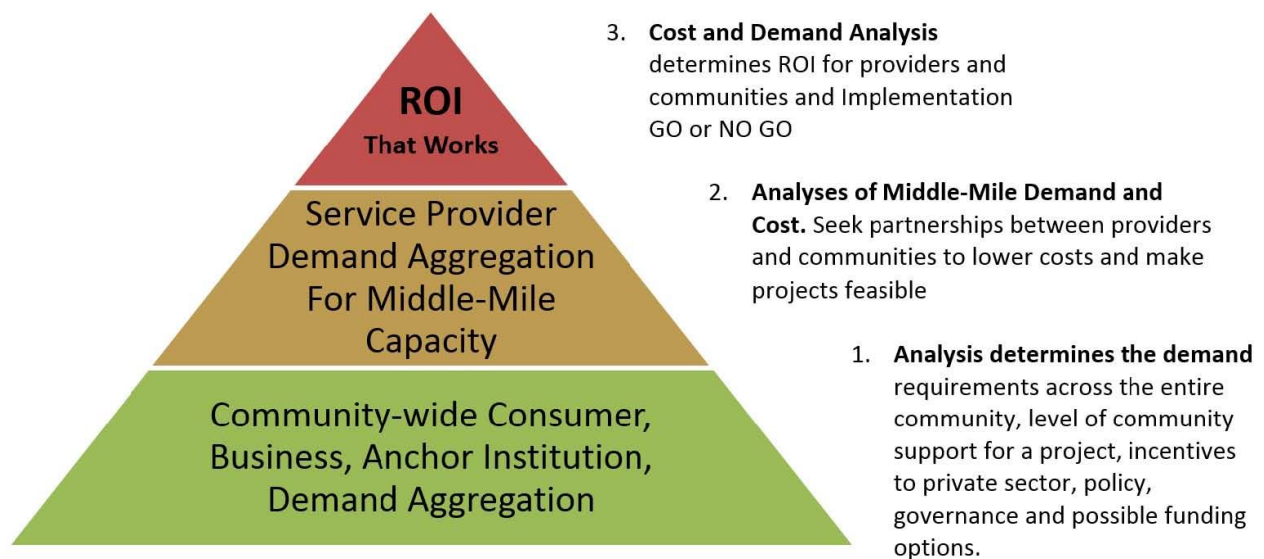
Provider	Service Type	Advertised Download Speed	Advertised Upload Speed	Download Speed Tier	Upload Speed Tier
Century Link	Fiber	100 Mbps - 1 Gbps	50 - 100 Mbps	10	9
Level 3 Communications	Fiber	> 1 Gbps	> 1 Gbps	11	11
MTE Communications	Fiber	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
SRP	Fiber	> 1 Gbps	> 1 Gbps	11	11
MTE Communications	Fiber	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Century Link	DSL (Asymmetric)	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
Century Link	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
Century Link	DSL (Asymmetric)	3 - 6 Mbps	768 Kbps - 1.5 Mbps	5	3
Century Link	DSL (Asymmetric)	6 - 10 Mbps	768 Kbps - 1.5 Mbps	6	3
Century Link	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Century Link	DSL (Asymmetric)	25 - 50 Mbps	3 - 6 Mbps	8	5
Century Link	DSL (Asymmetric)	25 - 50 Mbps	10 - 25 Mbps	8	7
Frontier Communications of the White Mountains	DSL (Asymmetric)	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2
Frontier Communications of the White Mountains	DSL (Asymmetric)	1.5 - 3 Mbps	200 - 768 Kbps	4	2
Frontier Communications of the White Mountains	DSL (Asymmetric)	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
Frontier Communications of the White Mountains	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
Frontier Communications of the White Mountains	DSL (Asymmetric)	3 - 6 Mbps	768 Kbps - 1.5 Mbps	5	3
Frontier Communications of the White Mountains	DSL (Asymmetric)	10 - 25 Mbps	1.5 - 3 Mbps	7	4
Frontier Communications of the White Mountains	DSL (Asymmetric)	25 - 50 Mbps	3 - 6 Mbps	8	5
Covad Communications	DSL (Asymmetric)	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
Covad Communications	DSL (Asymmetric)	6 - 10 Mbps	200 - 768 Kbps	6	2
Integra Telecom	DSL (Asymmetric)	6 - 10 Mbps	200 - 768 Kbps	6	2
MTE Communications	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Saddleback Communications	DSL (Asymmetric)	10 - 25 Mbps	1.5 - 3 Mbps	7	4
San Carlos Apache Telecom Utility	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
TDS Telecom	DSL (Asymmetric)	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2
TDS Telecom	DSL (Asymmetric)	1.5 - 3 Mbps	200 - 768 Kbps	4	2
TDS Telecom	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
TDS Telecom	DSL (Asymmetric)	6 - 10 Mbps	200 - 768 Kbps	6	2
TDS Telecom	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Century Link	DSL (Asymmetric)	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
Century Link	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
Century Link	DSL (Asymmetric)	3 - 6 Mbps	768 Kbps - 1.5 Mbps	5	3
Century Link	DSL (Asymmetric)	6 - 10 Mbps	768 Kbps - 1.5 Mbps	6	3
Century Link	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Century Link	DSL (Asymmetric)	25 - 50 Mbps	3 - 6 Mbps	8	5
Century Link	DSL (Asymmetric)	25 - 50 Mbps	10 - 25 Mbps	8	7
Frontier Communications of the White Mountains	DSL (Asymmetric)	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2
Frontier Communications of the White Mountains	DSL (Asymmetric)	1.5 - 3 Mbps	200 - 768 Kbps	4	2
Frontier Communications of the White Mountains	DSL (Asymmetric)	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
Frontier Communications of the White Mountains	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
Frontier Communications of the White Mountains	DSL (Asymmetric)	3 - 6 Mbps	768 Kbps - 1.5 Mbps	5	3
Frontier Communications of the White Mountains	DSL (Asymmetric)	10 - 25 Mbps	1.5 - 3 Mbps	7	4
Frontier Communications of the White Mountains	DSL (Asymmetric)	25 - 50 Mbps	3 - 6 Mbps	8	5
MTE Communications	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Saddleback Communications	DSL (Asymmetric)	10 - 25 Mbps	1.5 - 3 Mbps	7	4
San Carlos Apache Telecom Utility	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
TDS Telecom	DSL (Asymmetric)	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2
TDS Telecom	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
TDS Telecom	DSL (Asymmetric)	6 - 10 Mbps	200 - 768 Kbps	6	2
TDS Telecom	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Covad Communications	DSL (Symmetric)	768 Kbps - 1.5 Mbps	768 Kbps - 1.5 Mbps	3	3
Covad Communications	DSL (Symmetric)	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Covad Communications	DSL (Symmetric)	3 - 6 Mbps	3 - 6 Mbps	5	5
Integra Telecom	DSL (Symmetric)	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Integra Telecom	DSL (Symmetric)	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Covad Communications	T1/Tn	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Covad Communications	T1/Tn	3 - 6 Mbps	3 - 6 Mbps	5	5
Integra Telecom	T1/Tn	6 - 10 Mbps	6 - 10 Mbps	6	6
TW Telecom	T1/Tn	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
TW Telecom	T1/Tn	3 - 6 Mbps	3 - 6 Mbps	5	5
XO Communications	T1/Tn	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
XO Communications	T1/Tn	6 - 10 Mbps	6 - 10 Mbps	6	6
Covad Communications	T1/Tn	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Covad Communications	T1/Tn	3 - 6 Mbps	3 - 6 Mbps	5	5
Integra Telecom	T1/Tn	6 - 10 Mbps	6 - 10 Mbps	6	6
Cable One	Cable	50 - 100 Mbps	1.5 - 3 Mbps	9	4
Cox Communications	Cable	100 Mbps - 1 Gbps	10 - 25 Mbps	10	7
Mediacom Southeast	Cable	25 - 50 Mbps	1.5 - 3 Mbps	8	4
NPG Cable (Suddenlink)	Cable	1.5 - 3 Mbps	200 - 768 Kbps	4	2
NPG Cable (Suddenlink)	Cable	3 - 6 Mbps	200 - 768 Kbps	5	2
NPG Cable (Suddenlink)	Cable	10 - 25 Mbps	1.5 - 3 Mbps	7	4
NPG Cable (Suddenlink)	Cable	25 - 50 Mbps	1.5 - 3 Mbps	8	4
NPG Cable (Suddenlink)	Cable	50 - 100 Mbps	3 - 6 Mbps	9	5
Ygnition	Cable	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2
Cable One	Cable	50 - 100 Mbps	1.5 - 3 Mbps	9	4
Cox Communications	Cable	100 Mbps - 1 Gbps	10 - 25 Mbps	10	7
Mediacom Southeast	Cable	25 - 50 Mbps	1.5 - 3 Mbps	8	4
NPG Cable (Suddenlink)	Cable	10 - 25 Mbps	1.5 - 3 Mbps	7	4
NPG Cable (Suddenlink)	Cable	25 - 50 Mbps	1.5 - 3 Mbps	8	4
NPG Cable (Suddenlink)	Cable	50 - 100 Mbps	3 - 6 Mbps	9	5
TruCom	Fixed Wireless	768 Kbps - 1.5 Mbps	768 Kbps - 1.5 Mbps	3	3
Wydebeam	Fixed Wireless	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Pointe Wireless	Fixed Wireless	3 - 6 Mbps	200 - 768 Kbps	5	2
Transcend Broadband	Fixed Wireless	3 - 6 Mbps	1.5 - 3 Mbps	5	4
Casa Grande Internet	Fixed Wireless	6 - 10 Mbps	768 Kbps - 1.5 Mbps	6	3
Comcast	Fixed Wireless	3 - 6 Mbps	1.5 - 3 Mbps	6	3
Transworld Network	Fixed Wireless	6 - 10 Mbps	1.5 - 3 Mbps	6	4
AireBeam	Fixed Wireless	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Desert INET	Fixed Wireless	10 - 25 Mbps	1.5 - 3 Mbps	7	4
Rio Verde Wireless	Fixed Wireless	10 - 25 Mbps	3 - 6 Mbps	7	5
CommSpeed	Fixed Wireless	768 Kbps - 1.5 Mbps	768 Kbps - 1.5 Mbps	3	3
Transworld Network	Fixed Wireless	6 - 10 Mbps	1.5 - 3 Mbps	6	4
Leap Wireless (Cricket)	Mobile Wireless	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2

**Pinal County Service Providers**

<b>Provider</b>	<b>Service Type</b>	<b>Advertised Download Speed</b>	<b>Advertised Upload Speed</b>	<b>Download Speed Tier</b>	<b>Upload Speed Tier</b>
Century Link	Fiber	100 Mbps - 1 Gbps	50 - 100 Mbps	10	9
Century Link	Fiber	50 - 100 Mbps	25 - 50 Mbps	9	8
Level 3 Communications	Fiber	> 1 Gbps	> 1 Gbps	11	11
SRP	Fiber	> 1 Gbps	> 1 Gbps	11	11
TW Telecom	Fiber	100 Mbps - 1 Gbps	100 Mbps - 1 Gbps	10	10
TW Telecom	Fiber	> 1 Gbps	> 1 Gbps	11	11
TW Telecom	Fiber	768 Kbps - 1.5 Mbps	768 Kbps - 1.5 Mbps	3	3
TW Telecom	Fiber	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
TW Telecom	Fiber	3 - 6 Mbps	3 - 6 Mbps	5	5
TW Telecom	Fiber	6 - 10 Mbps	6 - 10 Mbps	6	6
TW Telecom	Fiber	10 - 25 Mbps	10 - 25 Mbps	7	7
TW Telecom	Fiber	25 - 50 Mbps	25 - 50 Mbps	8	8
TW Telecom	Fiber	50 - 100 Mbps	50 - 100 Mbps	9	9
Zayo Enterprise Networks	Fiber	> 1 Gbps	> 1 Gbps	11	11
Level 3 Communications	Fiber	> 1 Gbps	> 1 Gbps	11	11
Century Link	DSL (Asymmetric)	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
Century Link	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
Century Link	DSL (Asymmetric)	3 - 6 Mbps	768 Kbps - 1.5 Mbps	5	3
Century Link	DSL (Asymmetric)	6 - 10 Mbps	768 Kbps - 1.5 Mbps	6	3
Century Link	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Century Link	DSL (Asymmetric)	25 - 50 Mbps	3 - 6 Mbps	8	5
Century Link	DSL (Asymmetric)	25 - 50 Mbps	10 - 25 Mbps	8	7
Covad Communications	DSL (Asymmetric)	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
Covad Communications	DSL (Asymmetric)	6 - 10 Mbps	200 - 768 Kbps	6	2
Integra Telecom	DSL (Asymmetric)	6 - 10 Mbps	200 - 768 Kbps	6	2
MTE Communications	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Saddleback Communications	DSL (Asymmetric)	10 - 25 Mbps	1.5 - 3 Mbps	7	4
San Carlos Apache Telecom Utility	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
Tohono O'Odham Utility	DSL (Asymmetric)	10 - 25 Mbps	200 - 768 Kbps	7	2
Century Link	DSL (Asymmetric)	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
Century Link	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
Century Link	DSL (Asymmetric)	3 - 6 Mbps	768 Kbps - 1.5 Mbps	5	3
Century Link	DSL (Asymmetric)	6 - 10 Mbps	768 Kbps - 1.5 Mbps	6	3
Century Link	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Century Link	DSL (Asymmetric)	25 - 50 Mbps	3 - 6 Mbps	8	5
Century Link	DSL (Asymmetric)	25 - 50 Mbps	10 - 25 Mbps	8	7
Integra Telecom	DSL (Asymmetric)	6 - 10 Mbps	200 - 768 Kbps	6	2
MTE Communications	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Saddleback Communications	DSL (Asymmetric)	10 - 25 Mbps	1.5 - 3 Mbps	7	4
San Carlos Apache Telecom Utility	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
Tohono O'Odham Utility	DSL (Asymmetric)	10 - 25 Mbps	200 - 768 Kbps	7	2
Covad Communications	DSL (Symmetric)	768 Kbps - 1.5 Mbps	768 Kbps - 1.5 Mbps	3	3
Covad Communications	DSL (Symmetric)	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Covad Communications	DSL (Symmetric)	3 - 6 Mbps	3 - 6 Mbps	5	5
Covad Communications	DSL (Symmetric)	10 - 25 Mbps	10 - 25 Mbps	7	7
Covad Communications	DSL (Symmetric)	25 - 50 Mbps	25 - 50 Mbps	8	8
Integra Telecom	DSL (Symmetric)	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
XO Communications	DSL (Symmetric)	768 Kbps - 1.5 Mbps	768 Kbps - 1.5 Mbps	3	3
XO Communications	DSL (Symmetric)	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Integra Telecom	DSL (Symmetric)	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Covad Communications	T1/Tn	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Covad Communications	T1/Tn	3 - 6 Mbps	3 - 6 Mbps	5	5
Integra Telecom	T1/Tn	6 - 10 Mbps	6 - 10 Mbps	6	6
TW Telecom	T1/Tn	768 Kbps - 1.5 Mbps	768 Kbps - 1.5 Mbps	3	3
TW Telecom	T1/Tn	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
TW Telecom	T1/Tn	3 - 6 Mbps	3 - 6 Mbps	5	5
TW Telecom	T1/Tn	6 - 10 Mbps	6 - 10 Mbps	6	6
TW Telecom	T1/Tn	10 - 25 Mbps	10 - 25 Mbps	7	7
TW Telecom	T1/Tn	25 - 50 Mbps	25 - 50 Mbps	8	8
XO Communications	T1/Tn	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
XO Communications	T1/Tn	3 - 6 Mbps	3 - 6 Mbps	5	5
XO Communications	T1/Tn	6 - 10 Mbps	6 - 10 Mbps	6	6
XO Communications	T1/Tn	10 - 25 Mbps	10 - 25 Mbps	7	7
XO Communications	T1/Tn	25 - 50 Mbps	25 - 50 Mbps	8	8
Covad Communications	T1/Tn	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Covad Communications	T1/Tn	3 - 6 Mbps	3 - 6 Mbps	5	5
Integra Telecom	T1/Tn	6 - 10 Mbps	6 - 10 Mbps	6	6
Cable One	Cable	50 - 100 Mbps	1.5 - 3 Mbps	9	4
Comcast Cable	Cable	100 Mbps - 1 Gbps	10 - 25 Mbps	10	7
Cox Communications	Cable	100 Mbps - 1 Gbps	10 - 25 Mbps	10	7
Mediacom Southeast	Cable	25 - 50 Mbps	1.5 - 3 Mbps	8	4
NPG Cable (Suddenlink)	Cable	1.5 - 3 Mbps	200 - 768 Kbps	4	2
Orbitel Communications	Cable	25 - 50 Mbps	1.5 - 3 Mbps	8	4
Western Broadband	Cable	10 - 25 Mbps	200 - 768 Kbps	7	2
Ygnition	Cable	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2
Cable One	Cable	50 - 100 Mbps	1.5 - 3 Mbps	9	4
Comcast Cable	Cable	100 Mbps - 1 Gbps	10 - 25 Mbps	10	7
Cox Communications	Cable	100 Mbps - 1 Gbps	10 - 25 Mbps	10	7
Mediacom Southeast	Cable	25 - 50 Mbps	1.5 - 3 Mbps	8	4
Western Broadband	Cable	10 - 25 Mbps	200 - 768 Kbps	7	2
TruCom	Fixed Wireless	768 Kbps - 1.5 Mbps	768 Kbps - 1.5 Mbps	3	3
Phoenix Internet	Fixed Wireless	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
Simply Bits	Fixed Wireless	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Wydebeam	Fixed Wireless	1.5 - 3 Mbps	1.5 - 3 Mbps	4	4
Transcend Broadband	Fixed Wireless	3 - 6 Mbps	1.5 - 3 Mbps	5	4
Casa Grande Internet	Fixed Wireless	6 - 10 Mbps	768 Kbps - 1.5 Mbps	6	3
Comcast	Fixed Wireless	6 - 10 Mbps	10 Mbps - 5 Mbps	6	3
City of Phoenix (Sky Harbor Airport)	Fixed Wireless	6 - 10 Mbps	1.5 - 3 Mbps	6	4
Transworld Network	Fixed Wireless	6 - 10 Mbps	1.5 - 3 Mbps	6	4
AireBeam	Fixed Wireless	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Webhiway Communications	Fixed Wireless	3 - 6 Mbps	3 - 6 Mbps	5	5
Airband	Fixed Wireless	6 - 10 Mbps	1.5 - 3 Mbps	6	4
Transworld Network	Fixed Wireless	6 - 10 Mbps	1.5 - 3 Mbps	6	4
Lean Wireless (Cricket)	Mobile Wireless	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2

## Arizona Broadband Project

### Systems Requirements Specifications



This diagram is presented in the Broadband Business Case Analysis. Although Middle Mile does represent an operational weak-point, the US 60 and Broadband project is more focused on a Last Mile and Distribution problem to meet consumer demand. To better understand the demands of the consumer, it is essential that the consumer define their system's requirements. In an effort to help with this activity, we are requesting the following information be completed to the best of ability and sent to:

Al Larson, [alarson@caagcentral.org](mailto:alarson@caagcentral.org) , copy Jim Simms [jim.simms@centurylink.net](mailto:jim.simms@centurylink.net) and Bill Bolin: [billbolin@hotmail.com](mailto:billbolin@hotmail.com)

**Purpose:** Better serve rural Arizona (US 60 and Broadband, AZ) with broadband capabilities and capacities to support: 1) Economic Development (Jobs), 2) Education, 3) Telemedicine and 4) Public Safety.

**Scope of Work:** To work with stakeholders and complete a picture of their business demands for broadband infrastructure that can be effectively communicated to service providers, whereas the service providers will produce cost effective alternatives to meet the stakeholder's demands.

Appendix D – Systems Requirements continued...

**SYSTEM REQUIREMENTS SUMMARY:**

**Name of Business:** \_\_\_\_\_

**Location (address):** \_\_\_\_\_

**Type of Business:** \_\_\_\_\_  
(Education, Medical, Government, Business, Public Safety)

**Major Application(s):** \_\_\_\_\_  
(taxes, accounting, enrollment, admission/transfer/discharge, production, sales, marketing, etc.)

**Describe Volume and Frequency:** \_\_\_\_\_

\_\_\_\_\_

**Number of Users:** \_\_\_\_\_ **Peak Time of Day/Night:** \_\_\_\_\_

**Number of PCs in facility(s):** \_\_\_\_\_

**Description of Current Equipment** (switches, servers, host computer(s): \_\_\_\_\_

\_\_\_\_\_

**Describe Current Broadband Configuration** (fiber, DSL, T1 / Copper, DS3, etc.)

**Age of Equipment:** \_\_\_\_\_ years **Equipment under Maintenance:** Yes or NO circle

**Terms of Contract and Contract Period:** \_\_\_\_\_

\_\_\_\_\_

**Describe YOUR Major Goal:** \_\_\_\_\_

\_\_\_\_\_

In terms of bandwidth if known, what synchronous throughput capacity and/or speed ( Mbps )...not how it is delivered ( fiber vs copper vs wireless, Etc )

**MUST Have** \_\_\_\_\_ **LIKE to Have** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

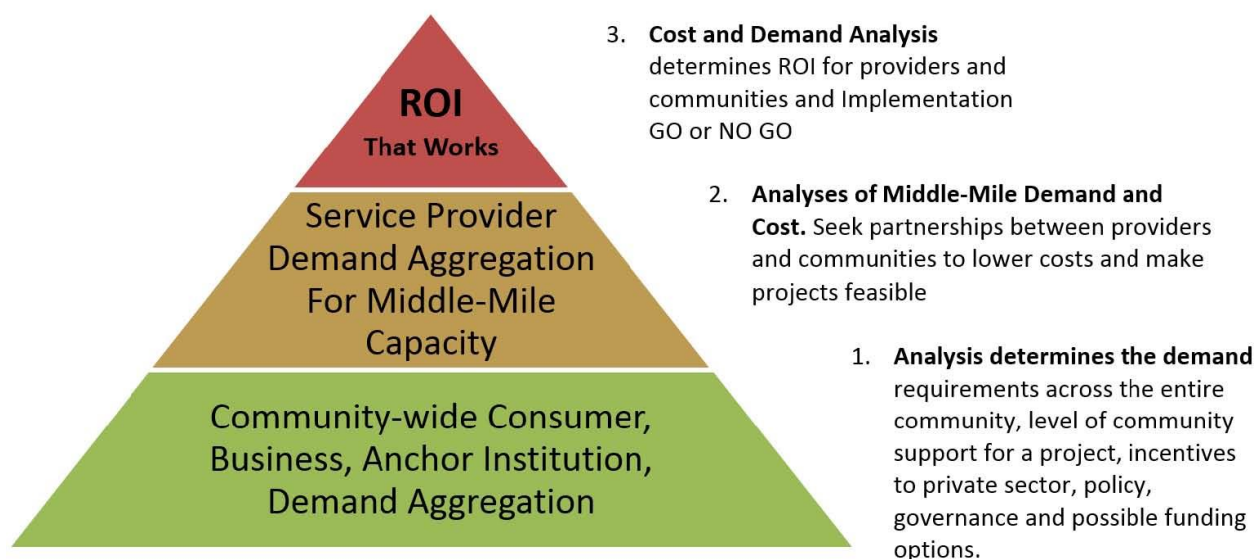
**Please indicate your Name and contact information:**

**NAME:** \_\_\_\_\_ **email:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

## Arizona Broadband Project

### PROVIDER'S Systems Requirements Specifications



This diagram is presented in the Broadband Business Case Analysis. Although Middle Mile does represent an operational weak-point, the US 60 and Broadband project is more focused on a Last Mile and Distribution problem to meet consumer demand. To better serve the demands of the consumer, it is essential that Carriers define their network reach. In an effort to help with this activity, we are requesting the following information be completed to the best of ability and sent to:

Al Larson, [alarson@caagcentral.org](mailto:alarson@caagcentral.org) , copy Jim Simms [jim.simms@centurylink.net](mailto:jim.simms@centurylink.net) and Bill Bolin: [billbolin@hotmail.com](mailto:billbolin@hotmail.com)

**Purpose:** Better serve rural Arizona with broadband capabilities and capacities to support:  
1) Economic Development (Jobs), 2) Education, 3) Telemedicine and 4) Public Safety.

**Scope of Work:** To work with stakeholders and complete a picture of their business demands for broadband infrastructure that can be effectively communicated to service providers, whereas the service providers will produce cost effective alternatives to meet the stakeholder's demands.

**NETWORK / FACILITY SUMMARY:**

**Name of Business:** \_\_\_\_\_

**Location (address):** \_\_\_\_\_

**Business (Public or Private) (circle one)**    **Public**    **Private**  
**International,**    **National,**    **Regional,**    **Local** (circle best description)

**Arizona Corporation Commission or FCC registration type:** (CLEC, ILEC, common carrier, unregistered, etc.) \_\_\_\_\_

**Local Contact Person** (name, title email, phone): \_\_\_\_\_

**Description of service delivery method:** (fiber, DSL, T1 / Copper, DS3, etc.) \_\_\_\_\_

**General Description of Customers:** (government, education, health, base businesses) \_\_\_\_\_

**List Interconnected Providers:** \_\_\_\_\_

**Radius of Services:** \_\_\_\_\_ miles from downtown US 60 and Broadband Az., **List Connected Communities:** \_\_\_\_\_

**Location of Point Of Presence(s) (CO, POP, COLO, ETC):** \_\_\_\_\_

**Path of Inter Office Fiber (place on the Map color coded)**

**Description of Current Equipment Both Intra-building and Field** (switches, DSLAM, amplification, repeaters, servers) : \_\_\_\_\_

**Describe Current Broadband Configuration**

**Age of Equipment:** \_\_\_\_\_ years    **Equipment under Maintenance:** Yes or NO circle

**Terms of Contract and Contract Period:** \_\_\_\_\_

## Appendix F- Broadband User Survey of Applications

Applications Priority as defined by CAG's Sub-Committee (as of 2/8/2013)

1. Economic Development
2. Education
3. Telemedicine
4. Public Safety

## Appendix G: Digital Arizona Program Broadband Grants and Resources

### **DAP Broadband Grants & Resources**

Under the auspices of the CAG Broadband Steering Committee, an extensive **DAP Broadband Grants & Resources Guide** has been developed for **Digital Arizona Program (DAP - <http://azbroadband.gov/>)**. Please reference the separate standalone document who's Table of Contents follows:

#### **DAP Broadband Grants & Resources Guide**

##### **Table of Contents**

##### **Preface**

##### **Broadband Grants Seekers Introduction**

##### **State of Arizona Grant Opportunities**

##### **Arizona Strategic Enterprise Technology Office (ASET)**

##### **Arizona Governor's Office**

##### **Arizona Department of Education**

##### **Arizona State Library, Archives and Public Records**

##### **Arizona Department of Homeland Security**

##### **Arizona Department of Commerce (ACA)**

##### **Science Foundation of Arizona (SFAz)**

##### **Arizona Corporation Commission (ACC)**

##### **Arizona Telemedicine Program (ATP)**

##### **Arizona Grantmakers Forum (AGF)**

##### **Federal Government Grant Opportunities**

##### **General Federal Grant Sources**

##### **U.S. Dept. of Agriculture (USDA) Rural Utility Services (RUS)**

##### **Federal Communications Commission (FCC)**

##### **U.S. Dept. of Commerce (DOC) National Telecommunications & Information Administration (NTIA)**

##### **U.S. Dept. of Commerce (DOC) Bureau of Economic Analysis Education & Libraries Specific**

##### **Telehealth Specific**

##### **Public Safety Specific**

##### **Small Business Innovation Research (SBIR)**

##### **Small Business Technology Transfer (STTR)**

##### **Small Business Administration (SBA) Programs**

##### **Other Grant Opportunities**

##### **Foundations and Trusts - Arizona Specific**

##### **Foundations and Trusts - National**



Appendix G continued: **DAP Broadband Grants & Resources Guide**  
**Table of Contents (Continued)**

**Broadband Resources**

**Federal Resources**

**State Digital Capacity Plans and Resources**

**Arizona State Resources**

**National Nonprofit Organizations**

**National Trade Associations**

**Arizona Nonprofit Organizations and Trade Associations**

**National eLearning and Technology in Education Resources**

**Arizona eLearning and Technology in Education Resources**

**National Telehealth Resources**

**Arizona Telehealth Resources**

**National eGovernment Resources**

**Arizona eGovernment Resources**

**National Discovery, Innovation and Research Resources**

**Arizona Discovery, Innovation and Research Resources**

**National Smart Energy and Environmental Resources**

**Arizona Smart Energy and Environmental Resources**

**National Public Safety Communications Resources**

**Arizona Public Safety Communications Resources**

**National Native American Resources**

**Arizona Native American Resources**

**Arizona Statistical Resources**

**Community Toolkits, Economic and Financial Modeling**

## Appendix H – CAG Broadband Committee Members

### Current members of the CAG Sub-Committee include:

- Al Larson, Interim Director, Central Arizona Government (CAG)
- Micah Miranda, Economic Development Director – City of Maricopa
- Belinda Akes, Economic Development, City of Eloy
- Jim Rhodes, Director Small Business Development Center (SBDC), Central Arizona College
- Tim Kanavel, Economic Development Director for Pinal County
- Sam Hosler, Mayor, City of Kearny

### **Consultants:**

Bill Bolin  
STS  
Cave Creek, AZ  
480-563-8553  
[billbolin@hotmail.com](mailto:billbolin@hotmail.com)

Jim Simms  
ORAct  
Phoenix, AZ  
602-991-7714  
[jim.simms@centurylink.net](mailto:jim.simms@centurylink.net)

Appendix I: USDA-RBEG Task Team

**Organizational Structure approved:** November 20, 2014

**Project Manager:** Teri Drew, NACOG

**Project Leader:** Bill Bolin, STS – NACOG & Copper Corridor

**Financial Manager:** Vicki Mastriani, NACOG & Copper Corridor

**Copper Corridor – Finance and Project Group Leader:**  
Liz Harris Tuck – Copper Corridor

**Technical Assistance Project Group Leader:**  
Brad Zerbe – NACOG & Copper Corridor

## CAG - Two counties (CAG - TWO COUNTIES)

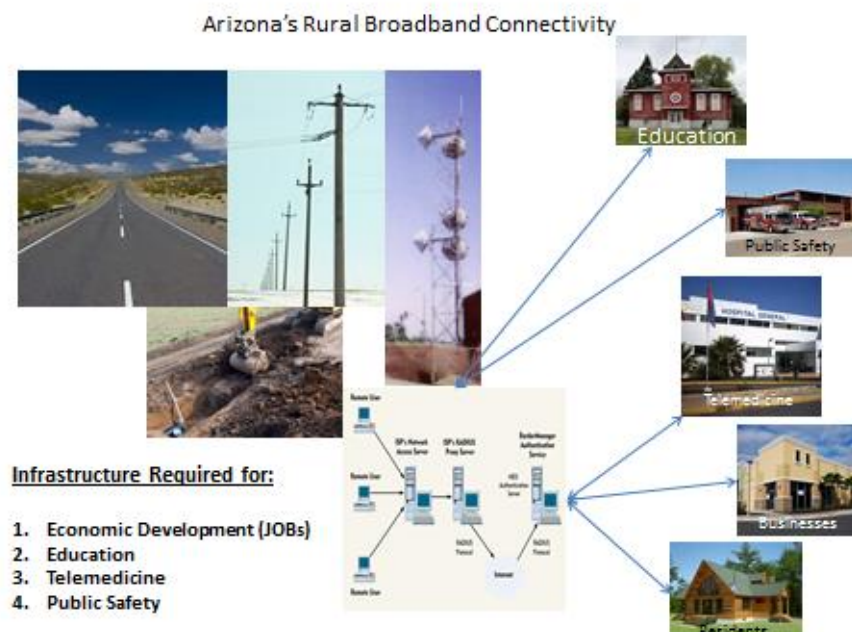
### Broadband Community Planning November 2013 – April 2014

CAG - TWO COUNTIES was asked to provide four regions where broadband projects and activities will generate and/or compliment:

1. North Copper Corridor (including Dudleyville, Superior, Kearny, Hayden/Winkelman)
2. US 60 Corridor (Superior, Miami, Claypool, and Globe)
3. NE Gila County (including Punkin Center, Payson, Star Valley, Pine and Strawberry)
4. South Copper Corridor (Mammoth, San Manuel, Oracle and Oracle - Junction/Saddlebrook)

Although Planning and Technical Assistance are critical elements to the broadband project, there is now the beginning of concentration on programs that can provide the essential infrastructure to begin actual construction of planned projects. There is a three point program approach:

1. **Community Planning** – an inventory of current assets
2. **Technical Assistance** – evaluation of needed requirements by the region and proposed system solutions to meet the demands/requirements.
3. **Future Infrastructure** – requirements to implement the solution(s).



This picture shows road construction with trenching for conduit/fiber, with connectivity to existing poles and microwave to provide broadband coverage for schools, businesses, public safety, medical and residents. All users are tied into a network to provide the best affordable coverage for the region / community.

## Appendix J: Website(s) Updates continued...

### **CAG - Two counties (CAG - TWO COUNTIES)**

#### **Broadband Community Planning November 2013 – April 2014**

#### **Web Update January – March 2014**

CAG - TWO COUNTIES was asked to provide four regions where broadband projects and activities will generate and/or compliment:

1. North Copper Corridor (including Dudleyville, Superior, Kearny, Hayden/Winkelman)
2. US 60 Corridor (Superior, Miami, Claypool, and Globe)
3. NE Gila County (including Punkin Center, Payson, Star Valley, Pine and Strawberry)
4. South Copper Corridor (Mammoth, San Manuel, Oracle and Oracle - Junction/Saddlebrook)

Although Planning and Technical Assistance are critical elements to the broadband project, there is now the beginning of concentration on programs that can provide the essential infrastructure to begin actual construction of planned projects. There is a three point program approach:

1. **US 60 and Broadband, Arizona** is the immediate Project. There have been meetings to identify the current assets, formulate Stakeholders' System Requirements and meetings with Broadband Service Providers to determine their services, capacities and alternative solutions (GAP Analysis) to meet the Stakeholder's System Requirements.

2. **Future Infrastructure** – Service Providers provide alternatives. Stakeholders determine best solution for implementation. Making rural broadband sustainable for business and resident retention, new business attraction, better education, tele-health and public safety.

### **What does it Really look like?**



Trenching



Feeder Cables: Substation to Switch Cabinets, distribute to transformers  
Broadband Providers' Conduit

These pictures show road construction with trenching for power, conduit/fiber, with connectivity to existing poles and microwave to provide broadband coverage for schools, businesses, public safety, medical and residents' usage. All users are tied into a network to provide the best affordable coverage for the region / community.

## Appendix K - Arizona Public Service's Master License Agreement



Date: October 25, 2013

Colin Barleycom  
Arizona Public Service  
Engineering Supervisor  
UG Construction & Project Management  
P.O. Box 53933, MS 3876  
Phoenix, AZ 85072-3933

### APPLICATION PROCEDURE FOR APS MASTER LICENSE AGREEMENT

To become a qualified applicant to attach to APS poles, a request for a "Master License Agreement for Communication Attachments to APS Poles" should be sent in letter form to:

Attn: Colin Barleycom  
Arizona Public Service Company  
P. O. Box 53933, MS 3876  
Phoenix, Arizona 85072-3933

1. This letter must include the most recent information available on the following:
  - a. Certificate of Good Standing from the Arizona Corporation Commission.
  - b. A copy of your organization's Annual Report, as required by and filed with the Arizona Corporation Commission.
  - c. A copy of all city and/or county and state authorizations entitling the applicant to engage in communications operations in the area(s) being served.
2. This letter must also include:
  - a. A statement of the general geographical area(s) to be served.
  - b. A statement of the specific geographical area where initial construction is to take place and the approximate date construction is scheduled to commence.
3. If, after receipt, the above information is found to be acceptable, Arizona Public Service Company will forward a Master License Agreement for Communication Attachment to APS Poles to the applicant for execution.
4. Prior to Arizona Public Service Company's execution of the Agreement the following must be received:
  - a. A certificate evidencing the insurance coverage as set forth in Appendix B of the Agreement.
  - b. *If requested by APS*, the appropriate level of financial security. This may be provided in the form of a letter of credit or an assignment of monies.

## Appendix L: Downstream and Upstream continued...

<b>Speed Range</b>	<b>Applications</b>
1 Mbps - .5 Mbps compressed)	<b>Voice over Internet Protocol</b> telephony, Basic email, Web browsing - (simple sites), Streaming music, Small display, Low quality video (highly compressed)
5 Mbps - 1 Mbps	<b>Web browsing</b> (complex sites), Email (larger file size attachments), Remote video surveillance, IPTV (Standard Definition), File sharing (small/medium), compressed broadcast video (1 screen), Streaming music.
10 Mbps - 5 Mbps	<b>File sharing</b> (large), IPTV-Standard Definition (3 TVs), Broadcast Standard Definition video, Video streaming (2-3 TVs), High Definition video downloading.
10 Mbps - 5 Mbps	<b>Medical file sharing</b> (basic), Remote diagnosis (basic), Digital Learning & Remote education (Common Core standards), Building control and management.
100 Mbps - 10 Mbps	<b>Telemedicine</b> , Educational Services (small schools), Broadcast video HD and some High-Definition, High quality tele-presence (distance learning), High Definition surveillance, Smart-Intelligent building control.
1 Gbps - 100 Mbps	<b>High Definition telemedicine</b> , Multiple Student Educational Services (large schools), Uncompressed High - Definition video, HD-IPTV (Many TV's), High Definition - Video on Demand. Gaming (immersion). 3D modeling.

An FCC National Broadband Plan milestone, by 2015 is, "100 million U.S. homes should have affordable access to actual download speeds of 50 Mbps and actual upload speeds of 20 Mbps." The National Broadband Plan further states: "The United States must lead the world in the number of homes and people with access to affordable, world-class broadband connections. As such, 100 million U.S. homes should have affordable access to actual download speeds of at least 100 Mbps and actual upload speeds of at least 50 Mbps by 2020, according to the national plan. For Community Anchor Institutions, the National Broadband Plan states: "Every American community should have affordable access to at least 1 gigabit per second broadband service to anchor institutions such as schools, hospitals, and government buildings." We have a long way to go.

CAG's average Down Load Speed is 4.03Mbps and Up Load Speed is 466kbps. While the Down Load speed is slightly higher than that of FCC's Down Speed for Arizona: Down Load is 3Mbps and Up Load is 768kbps, the CAG region is below the speeds required to support the major applications. As can be seen from the speed test averages per county within the CAG region, there is no comparison to the speed demands of the above applications.

## Appendix M: City of Maricopa Broadband Providers

City of Maricopa Broadband Providers					
Provider	Service Type	Advertised Download Speed	Advertised Upload Speed	Download Speed Tier	Upload Speed Tier
Level 3 Communications	Fiber	> 1 Gbps	> 1 Gbps	11	11
Level 3 Communications	Fiber	> 1 Gbps	> 1 Gbps	11	11
Century Link	DSL (Asymmetric)	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
Century Link	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
Century Link	DSL (Asymmetric)	3 - 6 Mbps	768 Kbps - 1.5 Mbps	5	3
Century Link	DSL (Asymmetric)	6 - 10 Mbps	768 Kbps - 1.5 Mbps	6	3
Century Link	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Century Link	DSL (Asymmetric)	25 - 50 Mbps	3 - 6 Mbps	8	5
Century Link	DSL (Asymmetric)	25 - 50 Mbps	10 - 25 Mbps	8	7
Century Link	DSL (Asymmetric)	3 - 6 Mbps	200 - 768 Kbps	5	2
Century Link	DSL (Asymmetric)	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Orbitel Communications	Cable	25 - 50 Mbps	1.5 - 3 Mbps	8	4
Transcend Broadband	Fixed Wireless	3 - 6 Mbps	1.5 - 3 Mbps	5	4
Casa Grande Internet	Fixed Wireless	6 - 10 Mbps	768 Kbps - 1.5 Mbps	6	3
Transworld Network	Fixed Wireless	6 - 10 Mbps	1.5 - 3 Mbps	6	4
AireBeam	Fixed Wireless	10 - 25 Mbps	768 Kbps - 1.5 Mbps	7	3
Transworld Network	Fixed Wireless	6 - 10 Mbps	1.5 - 3 Mbps	6	4
Leap Wireless (Cricket)	Mobile Wireless	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2
Sprint Communications	Mobile Wireless	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2
Verizon Communications	Mobile Wireless	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2
T-Mobile	Mobile Wireless	1.5 - 3 Mbps	200 - 768 Kbps	4	2
AT&T Mobility	Mobile Wireless	1.5 - 3 Mbps	768 Kbps - 1.5 Mbps	4	3
AT&T Mobility	Mobile Wireless	3 - 6 Mbps	3 - 6 Mbps	5	5
Leap Wireless (Cricket)	Mobile Wireless	6 - 10 Mbps	1.5 - 3 Mbps	6	4
T-Mobile	Mobile Wireless	6 - 10 Mbps	1.5 - 3 Mbps	6	4
T-Mobile	Mobile Wireless	10 - 25 Mbps	1.5 - 3 Mbps	7	4
AT&T Mobility	Mobile Wireless	10 - 25 Mbps	3 - 6 Mbps	7	5
Verizon Communications	Mobile Wireless	10 - 25 Mbps	3 - 6 Mbps	7	5
T-Mobile	Mobile Wireless	10 - 25 Mbps	6 - 10 Mbps	7	6
StarBand Communications	Satellite	768 Kbps - 1.5 Mbps	200 - 768 Kbps	3	2
Skycasters (VSAT Systems)	Satellite	6 - 10 Mbps	1.5 - 3 Mbps	6	4
HNS (Hughes, Echostar)	Satellite	10 - 25 Mbps	1.5 - 3 Mbps	7	4
ViaSat	Satellite	10 - 25 Mbps	3 - 6 Mbps	7	5



## Appendix N: a Broadband Checklist

### USDA - RBEG Federal Grant Broadband Checklist

The major problem for rural America is RETENTION – of businesses and residents. Too often base industry businesses leave their rural roots because of competitive pricing and most recently because of a lack of skilled employees. The competition factor can be somewhat overcome by better operational practices, whereas the skill sets obtained by local residents is only overcome by access to educational programs and services. This includes better broadband service along with education conducted through locally planned workshops and one-on-one business consulting to encourage entrepreneurs to open and sustain a business in a rural location.

The purpose of the funding sought in this proposal is to increase the number of entrepreneurs in the six rural counties we have identified (Apache, Navajo, Coconino, Yavapai, Pinal and Gila) through the development of additional business centers. CAG and CCEDC plan to do this by outreaching to EDOs and community leaders and determining whether a need for a business center exists in their area. Rather than working directly with residents, interested communities will receive support to establish their own business centers. This support will enable communities to:

1. Develop an implementation plan.
2. Provide advice along the way.
3. Train personnel to consult and facilitate workshops.
4. Provide access to our materials related to consulting and workshop delivery.

**This current USDA - RBEG federal grant is intended to assist**, in part, rural Arizona communities in six counties - that require increased broadband capacity to compliment the planning and implementation of local Resource Centers.

The last census showed that **some of Arizona's rural communities are actually beginning to depopulate**. To reverse this trend and ensure that Arizona has a robust and vibrant rural economy and lifestyle, broadband is the new infrastructure of the 21<sup>st</sup> century that will enable this to happen.

**The benefits of high speed broadband** are enormous yet many parts of rural Arizona do not enjoy the same broadband capacity and speeds as some urban parts of the state. This is in large part due to return on investment to broadband providers that is impacted by the density of population, and some other factors. This reduced broadband capacity affects the business climate, the local economy, and limits advances in broadband technology that enhance education, healthcare and public safety.

While there is no single formula to implement broadband demand aggregation in a local community, there are generally some basic action items that need to be taken in order to increase local broadband capacity.

## Appendix O continued...

A **checklist of activities** involved in demand aggregation includes:

### **Determine where you are starting from by creating a Base Line:**

- Organize a local committee of influential stakeholders, key elected officials and leaders including individuals representing public safety, education, healthcare, local business and community leaders to assist in implementing a local Resource Center. The demand on broadband capacity to meet the requirement of the specific applications will most likely demand provider aggregation for the project.
- Hold an initial meeting to brief these members on the importance of broadband and what it can do for their community. Assign some of the specific tasks below to members of this group, and meet monthly or as needed to give updates and determine next steps.
- Utilize the Arizona Broadband Map funded through a federal grant, and updated every six months to determine local broadband capacity and speeds. [www.azbroadband.gov](http://www.azbroadband.gov).
  - Specific training for using the Broadband Map can be obtained through the consultants.
- Utilize other resources to assist in the analysis of local broadband capacity to complement the map, e.g., ADOT, utility services, available grants, etc..
- Ask local broadband providers what plans they have in the near future to improve broadband capacity in the community. Also ask local providers what barriers there are to further broadband expansion in the community including the costs of obtaining rights of way permits.
- **Produce a summary report of where you are in broadband capacity in your community.**

### **Determine what broadband capacity you need and want**

- Analyze the community data sets available in the Arizona Broadband Map to outline and understand from a demographical viewpoint the local economic drivers in the community. This analysis should also take into account what types of businesses would realistically locate, or expand to your area. This could include tourism, mining, manufacturing, distribution and other industries.
- Interview local education leaders, healthcare providers, first responders and local business leaders and entrepreneurs and determine what specific applications they would like to be able to utilize with broadband. (For example, distance learning in education; and telemedicine in healthcare – and more specifically what types of telemedicine applications. Some require more bandwidth than others.) In your interview also discover what current applications of broadband they are utilizing, ask them their current broadband capacity, and most importantly what additional broadband capacity they desire and would utilize. ***This is the beginning of demand aggregation.***
- Produce a summary report of what additional broadband capacity the community needs to meet its application goals. It is these so-called “anchor institutions” such as government, schools, larger businesses, healthcare organizations and first responders that are willing to buy that provide the return on investment that providers need to

## Appendix O continued...

- justify expanding broadband expansion in the local community. Anchor institutions are essentially “big customers” that help underwrite the cost of local broadband infrastructure. The amount of broadband that is specifically needed for an application is contained in the following guide.

### **Ask Local Providers if they can meet this Broadband Demand**

- This can be done informally through conversations with local providers or more formally through an RFI process.
- If local providers cannot fulfill this “broadband gap” identify federal grant opportunities that can assist these providers in expanding their network. Many of these grants are provided through the U.S. Department of Agriculture’s Rural Utilities Program – often called USDA RUS. RUS is the legacy organization to the Rural Electrification Program that transformed the availability of electricity in rural America.
- If local providers have identified to you during your interview - costly “barriers” to developing broadband projects - seek local support to remove these barriers. It can sometimes take two years and cost up to half the cost of a project just to get the permits to start building broadband capacity. Experts have noted that there are sometimes unnecessary legal delays or barriers to building broadband capacity.
- Based on these activities, seek to reach formal or informal agreements with local providers to provide more broadband capacity to your community. This process is commonly referred to as demand aggregation.

**Demand Aggregation** is a proven method of having service providers work together to increase broadband availability in rural communities in the United States.

This idea is supported in the National Broadband Plan produced by the Federal Communications Commission (FCC).

The chart on the following page describes the speed ranges recommended to support the specific applications. The speeds are relative to costs. The faster the speed, the higher the cost.